

Missouri Department of Natural Resources
Total Maximum Daily Load Information Sheet

Edina Lake

Water Body Segment at a Glance:

County: Knox
Nearby Cities: Edina
Area of impairment: 51 Acres
Pollutant: Atrazine, Cyanazine
Source: Corn, Sorghum Production

Note: The long term average Atrazine levels indicate attainment of criteria and cyanazine data indicate designated use is being supported. Therefore this lake was deleted from the 2004-06 303(d) List.



State map showing location of watershed

TMDL Priority Ranking: Deleted Sept. 27, 2007

Description of the Problem

Beneficial uses of Edina Lake:

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health (Fish Consumption)
- Boating and Canoeing
- Drinking Water Supply

Use that is impaired

- Drinking Water Supply

Standards that apply

- Missouri's Water Quality Standards 10 CSR 20-7.031, Table A, allows a maximum of three micrograms per liter ($\mu\text{g}/\text{L}$) of atrazine. Because this number is based on health risk associated with a 70 year exposure period, the three $\mu\text{g}/\text{L}$ is interpreted as a long term average.
- A federal health advisory level of one microgram per liter ($\mu\text{g}/\text{L}$) of cyanazine is recommended for drinking water supplies.

Background Information and Water Quality Data

The Edina Reservoir is 51 acres in size and at one time served as the sole public water supply source for about 1,300 people in Edina and 3,000 people served by Knox County Public Water Supply District No.1. Runoff from corn and sorghum production areas in the watershed has resulted in measurable amounts of atrazine and cyanazine being detected within the lake.

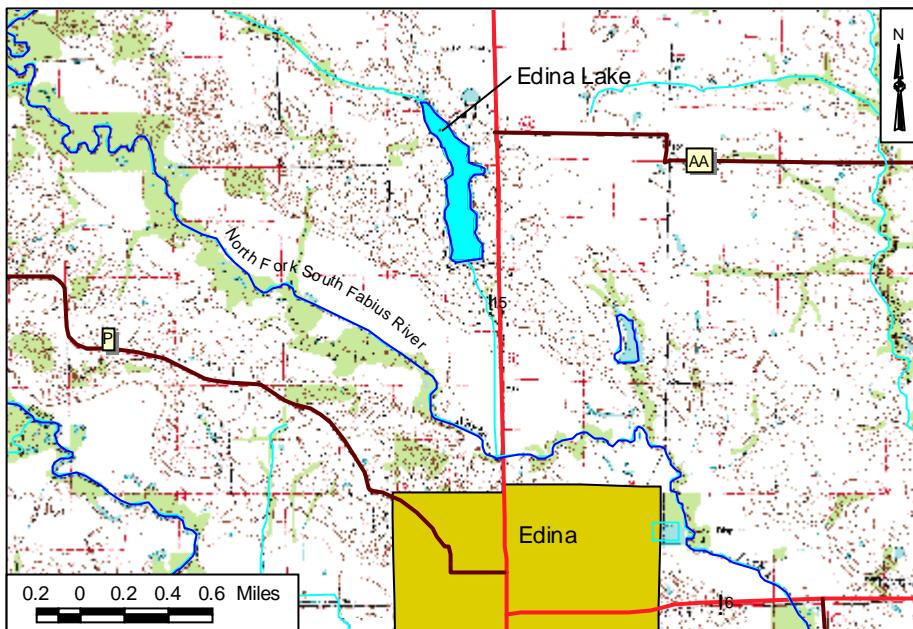
Atrazine is a widely used herbicide for control of broadleaf weeds. It is the most heavily used herbicide to kill weeds in corn and grain sorghum in Missouri. Atrazine is considered a possible human carcinogen, so the state standard for allowable amounts in drinking water supply source waters is set at three $\mu\text{g/L}$ or parts per billion. **Edina Lake's long term average for atrazine has fallen to 2.848 $\mu\text{g/L}$.**

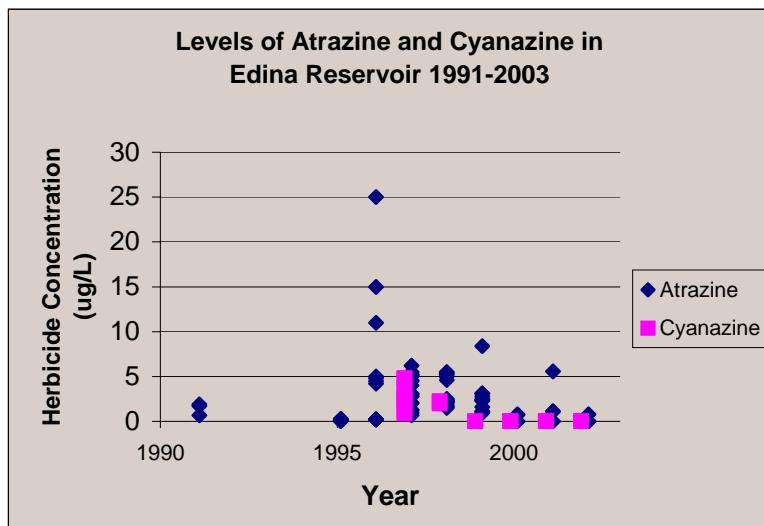
Cyanazine is an agricultural herbicide that was used from 1971 to 1999, when its manufacturer voluntarily withdrew it from production. At one time it was the fourth most widely used synthetic chemical pesticide in U.S. agriculture, applied to corn, cotton, and sorghum crops to control broadleaf weeds. It is relatively persistent in the environment, and under certain conditions will remain at significant levels in surface water for over one year. It has been identified as a surface water contaminant in 30 states, including Missouri. Cyanazine was withdrawn from use after being linked to a range of adverse health effects, including respiratory distress, cerebral palsy and impaired fetal development

Missouri decided not to include Edina Lake in the 2004-06 List citing the lack of a water quality criterion. The state's original listing was based on the federal health advisory level of 0.001 mg/L for the protection of drinking water, since Missouri has no criterion for cyanazine. Following the national cancellation of the pesticide's registration, which became effective Dec. 31, 1999, cyanazine levels in Edina Lake have fallen below the health advisory level. As such, EPA approves the state's decision to not list Edina Lake.

Also note that Edina Lake is no longer used as a drinking water supply and monitoring of the lake for herbicides has been discontinued.

Edina Lake in Knox County, Missouri, and Surrounding Area





Sources: Missouri Department of Natural Resources and Novartis Inc. (now Syngenta)

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